# Patent ) Storm

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## United States Patent 5768532

### Method and distributed database file system for implementing self-describing distributed file objects

US Patent Issued on June 16, 1998

**Inventor(s)**     [ABSTRACT] [CLAIMS] [DESCRIPTION] [FULL TEXT]

**Assignee**
International Business Machines
Corporation

**Application**
No. 664706 filed on 1996-06-17

**Current US Class**
709/245 , 370/409 , 707/104.1 ,
709/201

**Field of Search**
370/409 , 707/10 , 707/103 , 711/216

**Examiners**

Primary: Mehmet B Geckil

**Attorney, Agent or Firm**
Pennington; Joan

**US Patent References**
5301337
5371675
5381534
5542078
5551027
5581760
5687363
5701462

## Abstract

A method and apparatus are provided for implementing
self-describing file objects. A node group is created for
defining multiple computer systems for storing data. A
hash algorithm for applying to data records is identified. A
partition distribution map for distributing data to each of
the multiple computer systems utilizing a set of
predetermined hash algorithm results and remote system
information for each of the multiple computer systems are
identified. A file object is created in each of the multiple
computer systems. Each the file objects includes the hash
algorithm, the partition distribution map, and the remote
system information. A data record is inserted into one of
the distributed file objects by receiving the data record,
applying the hash algorithm to the received data record,

**Foreign Patent References**

522488 EP  Jan., 1993

WO96/07149 WO  Mar., 1996

comparing the hash algorithm result with the partition distribution map to identify the particular computer system for the data record, utilizing the system information to establish connection to that system. The file objects are fully self-describing, eliminating the need for additional objects to be addressed, opened, paged into memory or the like.

# Hit List

## Search Results - Record(s) 1 through 6 of 6 returned.

☐  1.   Document ID:  US 20060034263 A1

L2: Entry 1 of 6                          File: PGPB                          Feb 16, 2006

PGPUB-DOCUMENT-NUMBER: 20060034263
PGPUB-FILING-TYPE:
DOCUMENT-IDENTIFIER: US 20060034263 A1

TITLE: Model and system state synchronization

PUBLICATION-DATE: February 16, 2006

INVENTOR-INFORMATION:

| NAME | CITY | STATE | COUNTRY |
|------|------|-------|---------|
| Outhred; Geoffrey | Seattle | WA | US |
| Han; Eric K. | Redmond | WA | US |
| Grealish; Kevin D.J. | Seattle | WA | US |
| Brown; Mathilde C. | Seattle | WA | US |
| Gustin; Reid B. | Redmond | WA | US |
| Mensching; Rob | Redmond | WA | US |
| Nielsen; Steven T. | Redmond | WA | US |

US-CL-CURRENT: 370/352

| Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | Claims | KWIC | Draw. Desc | Image |

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☐  2.   Document ID:  US 20050097503 A1

L2: Entry 2 of 6                          File: PGPB                          May 5, 2005

PGPUB-DOCUMENT-NUMBER: 20050097503
PGPUB-FILING-TYPE: new
DOCUMENT-IDENTIFIER: US 20050097503 A1

TITLE: XML-based template language for devices and services

PUBLICATION-DATE: May 5, 2005

INVENTOR-INFORMATION:

| NAME | CITY | STATE | COUNTRY |
|------|------|-------|---------|
| Zintel, William M. | Kenmore | WA | US |
| Gandhi, Amar S. | Redmond | WA | US |
| Gu, Ye | Seattle | WA | US |

| Pather, Shyamalan | Redmond | WA | US |
| Schlimmer, Jeffrey C. | Redmond | WA | US |
| Rude, Christopher M. | Redmond | WA | US |
| Weisman, Daniel R. | Kirkland | WA | US |
| Ryan, Donald R. | Redmond | WA | US |
| Leach, Paul J. | Seattle | WA | US |
| Cai, Ting | Redmond | WA | US |
| Knight, Holly N. | Woodinville | WA | US |
| Ford, Peter S. | Carnation | WA | US |

US-CL-CURRENT: 717/100

| Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | Claims | KWIC | Draw Desc | Image |

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☐   3.   Document ID: US 20050074018 A1

L2: Entry 3 of 6                      File: PGPB                      Apr 7, 2005

PGPUB-DOCUMENT-NUMBER: 20050074018
PGPUB-FILING-TYPE: new
DOCUMENT-IDENTIFIER: US 20050074018 A1

TITLE: XML-based template language for devices and services

PUBLICATION-DATE: April 7, 2005

INVENTOR-INFORMATION:

| NAME | CITY | STATE | COUNTRY |
|------|------|-------|---------|
| Zintel, William M. | Kenmore | WA | US |
| Gandhi, Amar S. | Redmond | WA | US |
| Gu, Ye | Seattle | WA | US |
| Pather, Shyamalan | Redmond | WA | US |
| Schlimmer, Jeffrey C. | Redmond | WA | US |
| Rude, Christopher M. | Redmond | WA | US |
| Weisman, Daniel R. | Kirkland | WA | US |
| Ryan, Donald R. | Redmond | WA | US |
| Leach, Paul J. | Seattle | WA | US |
| Cai, Ting | Redmond | WA | US |
| Knight, Holly N. | Woodinville | WA | US |
| Ford, Peter S. | Carnation | WA | US |

US-CL-CURRENT: 370/401

| Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | Claims | KWIC | Draw Desc | Image |

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☐   4.   Document ID: US 20040199572 A1

L2: Entry 4 of 6                      File: PGPB                      Oct 7, 2004

PGPUB-DOCUMENT-NUMBER: 20040199572
PGPUB-FILING-TYPE: new
DOCUMENT-IDENTIFIER: US 20040199572 A1

TITLE: Architecture for distributed computing system and automated design, deployment, and management of distributed applications

PUBLICATION-DATE: October 7, 2004

INVENTOR-INFORMATION:

| NAME | CITY | STATE | COUNTRY |
|------|------|-------|---------|
| Hunt, Galen C. | Bellevue | WA | US |
| Tabbara, Bassam | Seattle | WA | US |
| Grealish, Kevin | Seattle | WA | US |
| Outhred, Geoffrey | Seattle | WA | US |
| Mensching, Rob | Redmond | WA | US |

US-CL-CURRENT: 709/201

| Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | Claims | KWIC | Draw Desc | Image |

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☐ 5.  Document ID: US 20020029256 A1

L2: Entry 5 of 6                    File: PGPB                    Mar 7, 2002

PGPUB-DOCUMENT-NUMBER: 20020029256
PGPUB-FILING-TYPE: new
DOCUMENT-IDENTIFIER: US 20020029256 A1

TITLE: XML-based template language for devices and services

PUBLICATION-DATE: March 7, 2002

INVENTOR-INFORMATION:

| NAME | CITY | STATE | COUNTRY |
|------|------|-------|---------|
| Zintel, William M. | Kenmore | WA | US |
| Gandhi, Amar S. | Redmond | WA | US |
| Gu, Ye | Seattle | WA | US |
| Pather, Shyamalan | Redmond | WA | US |
| Schlimmer, Jeffrey C. | Redmond | WA | US |
| Rude, Christopher M. | Redmond | WA | US |
| Weisman, Daniel R. | Kirkland | WA | US |
| Ryan, Donald R. | Redmond | WA | US |
| Leach, Paul J. | Seattle | WA | US |
| Cai, Ting | Redmond | WA | US |
| Knight, Holly N. | Woodinville | WA | US |
| Ford, Peter S. | Carnation | WA | US |

US-CL-CURRENT: 709/218

| Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | Claims | KWIC | Draw. Desc | Image |

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☐ 6.   Document ID: US 6910068 B2

L2: Entry 6 of 6                         File: USPT                      Jun 21, 2005

US-PAT-NO: 6910068
DOCUMENT-IDENTIFIER: US 6910068 B2

TITLE: XML-based template language for devices and services

DATE-ISSUED: June 21, 2005

INVENTOR-INFORMATION:

| NAME | CITY | STATE | ZIP CODE | COUNTRY |
|------|------|-------|----------|---------|
| Zintel; William M. | Kenmore | WA | | |
| Gandhi; Amar S. | Redmond | WA | | |
| Gu; Ye | Seattle | WA | | |
| Pather; Shyamalan | Redmond | WA | | |
| Schlimmer; Jeffrey C. | Redmond | WA | | |
| Rude; Christopher M. | Redmond | WA | | |
| Weisman; Daniel R. | Kirkland | WA | | |
| Ryan; Donald R. | Redmond | WA | | |
| Leach; Paul J. | Seattle | WA | | |
| Cai; Ting | Redmond | WA | | |
| Knight; Holly N. | Woodinville | WA | | |
| Ford; Peter S. | Carnation | WA | | |

ASSIGNEE-INFORMATION:

| NAME | CITY | STATE | ZIP CODE | COUNTRY | TYPE CODE |
|------|------|-------|----------|---------|-----------|
| Microsoft Corporation | Redmond | WA | | | 02 |

APPL-NO: 09/811362    [PALM]
DATE FILED: March 16, 2001

PARENT-CASE:
RELATED APPLICATION DATA This is a continuation-in-part of U.S. patent application Ser. No.
09/496,318, entitled "Dynamic Self-Configuration For Ad Hoc Peer Networking", filed Feb. 1,
2000, which is based on provisional application No. 60/139,137 filed Jun. 11, 1999, and
provisional application No. 60/160,235 filed Oct. 18, 1999. This also claims priority to
provisional application No. 60/190,943, filed Mar. 21, 2000, which is hereby incorporated by
reference.

INT-CL-ISSUED: [07] G06F 15/177

INT-CL-CURRENT:

| TYPE | IPC | | DATE |
|------|-----|---|------|
| CIPN | H04 L 29/08 | | 20060101 |
| CIPS | H04 L 29/06 | | 20060101 |

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CIPS   H04 L 12/56    20060101
CIPS   H04 L 12/46    20060101
CIPS   H04 L 29/12    20060101
CIPS   H04 L 12/28    20060101
```

US-CL-ISSUED: 709/220; 709/218, 709/225, 709/229, 709/249
US-CL-CURRENT: 709/220; 709/218, 709/225, 709/229, 709/249

FIELD-OF-CLASSIFICATION-SEARCH: 709/218, 709/220, 709/225, 709/229, 709/249
See application file for complete search history.

PRIOR-ART-DISCLOSED:

U.S. PATENT DOCUMENTS

| PAT-NO | ISSUE-DATE | PATENTEE-NAME | US-CL |
|---|---|---|---|
| 5394556 | February 1995 | Oprescu | 395/800 |
| 5491800 | February 1996 | Goldsmith et al. | 395/200.12 |
| 5559967 | September 1996 | Oprescu et al. | 395/285 |
| 5627964 | May 1997 | Reynolds et al. | 395/183.22 |
| 5745126 | April 1998 | Jain et al. | 382/154 |
| 5748980 | May 1998 | Lipe et al. | 395/828 |
| 5764930 | June 1998 | Staats | 395/287 |
| 5787246 | July 1998 | Lichtman et al. | 395/200.5 |
| 5787259 | July 1998 | Haroun et al. | 395/200.83 |
| 5793979 | August 1998 | Lichtman et al. | 395/200.56 |
| 5809331 | September 1998 | Staats et al. | 395/830 |
| 5881230 | March 1999 | Christensen et al. | 395/200.33 |
| 5903728 | May 1999 | Semenzato | 395/200.47 |
| 5903894 | May 1999 | Reneris | 707/100 |
| 5938752 | August 1999 | Leung et al. | 710/126 |
| 6083276 | July 2000 | Davidson et al. | |
| 6101499 | August 2000 | Ford et al. | 707/10 |
| 6167448 | December 2000 | Hemphill et al. | |
| 6466971 | October 2002 | Humpleman et al. | |
| 6477566 | November 2002 | Davis et al. | 709/223 |
| 6507856 | January 2003 | Chen et al. | 715/513 |
| 6546419 | April 2003 | Humpleman et al. | |
| 6553402 | April 2003 | Makarios et al. | 709/201 |
| 6560633 | May 2003 | Roberts et al. | 709/202 |

FOREIGN PATENT DOCUMENTS

| FOREIGN-PAT-NO | PUBN-DATE | COUNTRY | CLASS |
|---|---|---|---|
| WO 99/35856 | July 1999 | WO | |

OTHER PUBLICATIONS

A. Kung, B. Raither, S. McConnell, Electronic Commerce Services Expand Home Automation Capabilities, TRIALOG, EMMSEC '99 Conference, Jun. 1999, pp. 1-7.

Web Interface Definition Language (WIDL), NOTE-widl-970922, WebMethods, Inc. 1997, pp. 1-15.

"Home Plug & Play.TM.: CAL-based Interoperability for Home Systems," HomePNP.TM.Specification. Version 1.0, pp. 1-111, (Apr. 9, 1998).

White Paper, "HAVi, the A/V digital network revolution," HAVi Organization, pp. 1-7 (1999).

"Specification of the Home Audio/Video Interoperability (HAVi) Architecture," The HAVi Specification. Version 1.0 (Jan. 18, 2000).

Anderson, "FireWire System Architecture: Second Edition, IEEE 1394a," chapters 1-4 (1999).

Technical White Paper, "Jini Architectural Overview," Sun Microsystems, Inc. (1999).

"Salutation Consortium Frequently Asked Questions," The Salutation Consortium, pp. 1-6 (prior to filing date).

"Salutation Architecture Specification (Part-I), Version 2.0c," The Salutation Consortium, (Jun. 1, 1999).

"How it works," Thalia, pp. 1-3 (prior to filing date).

"Sun Microsystems and Thalia Productions Inc. to Collaborate to Co-Develop Network Software and Protocols for the Home, Results to Make Networked Appliances for the Home a Reality," Sunbeam Corporation, pp. 1-2 (2000).

"Sunbeam Joins Microsoft in the Universal Plug and Play Forum to Establish A `Universal` Smart Appliance Technology Standard," Sunbeam Corporation, pp. 1-2 (2000).

"Time for Smart Talk is Over, Sunbeam Trumps Small Appliance Industry With Smart Appliance Debut," Sunbeam Corporation, pp. 1-4 (2000).

"Lonworks Core Technology," Echelon Corporation, pp. 1-2 (2000).

"Underlying Protocol of Echelon's Lonworks.RTM. Network Adopted as New ANSI Standard, Free Reference Implementation Available to Developers," Echelon Corporation, pp. 1-2 (2000).

Handley et al., "SIP: Session Initiation Protocol," The Internet Society, pp. 1-130 (Aug. 6, 2000).

Rosenberg et al., "SIP Extensions for Instant Messaging," Internet Engineering Task Force, pp. 1-30 (Jun. 15, 2000).

Rosenberg et al., "SIP Extensions for Presence," Internet Engineering Task Force, pp. 1-77 (Jun. 15, 2000).

Tsang et al., "Requirements for Networked Appliances: Wide-Area Access, Control, and Interworking," Internet Engineering Task Force, pp. 1-9 (Sep. 2000).

Tsang et al., "SIP Extensions for Communicating with Networked Appliances," Internet Engineering Task Force, pp. 1-9 (Nov. 2000).

Moyer et al., "Framework Draft for Networked Appliances Using the Session Initiation Prtocol," Internet Engineering Task Force, pp. 1-31 (Nov. 2000).

Marples, "Naming and Accessing Network Appliances using extensions to the Session Initiation Protocol," SIP for Toaster, Telcordia Technologies (2000).

"Networked Appliances," AR Greenhouse, Telcordia Technologies, pp. 1-2 (Dec. 15, 2000).

Moyer et al., "SIP for Light Bulbs, Using SIP to Support Communication with Networked Appliances," Telcordia Technologies (Aug. 2, 2000).

Bennett et al., "Integrating Presence with Multi-media Communications," White Paper, Dynamicsoft., pp. 1-18 (2000).

Rosenberg et al., "An Application Server Architecture for Communications Services," White Paper, Dynamicsoft., pp. 1-13 (2000).

"EIB Technology," EIB (2000).

Freeman et al., "JavaSpaces.TM.Principles, Patterns, and Practice," Addison-Wesley Longman, Inc., Reading, Massachusetts (1999, Sun Microsystems, Inc.).

Arnold et al., "The Jini.TM.Specification," Addison-Wesley Longman, Inc., Reading, Massachusetts (1999, Sun Microsystems, Inc.).

Edwards, "Core Jini.TM., Second Edition," Prentice Hall PTR, Upper Saddle River, New Jersey (2001).

ART-UNIT: 2182

PRIMARY-EXAMINER: Gaffin; Jeffrey

ASSISTANT-EXAMINER: Farooq; Mohammad O.

ATTY-AGENT-FIRM: Lee & Hayes, PLLC

ABSTRACT:

A universal plug and play (UPnP) device makes itself known through a set of processes-
discovery, description, control, eventing, and presentation. Following discovery of a UPnP
device, an entity can learn more about the device and its capabilities by retrieving the
device's description. The description includes vendor-specific manufacturer information like
the model name and number, serial number, manufacturer name, URLs to vendor-specific Web sites,
etc. The description also includes a list of any embedded devices or services, as well as URLs
for control, eventing, and presentation. The description is written by a vendor, and is usually
based on a device template produced by a UPnP forum working committee. The template is derived
from a template language that is used to define elements to describe the device and any
services supported by the device. The template language is written using an XML-based syntax
that organizes and structures the elements.

38 Claims, 51 Drawing figures

| Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | Claims | KWIC | Draw Desc | Image |

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| Clear | | Generate Collection | | Print | | Fwd Refs | | Bkwd Refs | | Generate OACS |

| Term | Documents |
|---|---|
| DATA | 4135254 |
| DATUM | 38125 |
| STRUCTURE | 5002189 |
| STRUCTURES | 1318386 |
| (1 AND (STRUCTURE NEAR DATA)).PGPB,USPT,USOC,EPAB,JPAB,DWPI,TDBD. | 6 |
| (L1 AND (DATA NEAR STRUCTURE) ).PGPB,USPT,USOC,EPAB,JPAB,DWPI,TDBD. | 6 |

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